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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,611	01/14/2004	Dennis M. Read JR.	68.0387	4806
7590	12/16/2005		EXAMINER COY, NICOLE A	
Bryan P. Galloway Schlumberger Technology Corporation Schlumberger Reservoir Completions 14910 Airline Road, P.O. Box 1590 Rosharon, TX 77583-1590			ART UNIT	PAPER NUMBER
			3672	
DATE MAILED: 12/16/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/757,611	Applicant(s) READ, DENNIS M.	
	Examiner Nicole Coy	Art Unit 3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/14/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because Figure 2 on page 3/6 refers to figure 2B, and there is only a figure 2A. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 7, 8, 10-13, 16-19, 21-23, 25, and 26 are rejected under 35

U.S.C. 102(b) as being anticipated by Pringle et al. (USP 4,771,831).

With respect to claim 1, Pringle et al. discloses an apparatus for remotely charging and storing energy to operate a tool positioned in a well, comprising: a tool body (10) having a central bore formed therethrough (16); a moveable piston arranged in the tool body (28); a spring arranged in the tool body, the spring adapted to engage the piston (36); and a latching mechanism adapted to selectively lock the piston to the tool body (52, 54), wherein energy is charged by moving the piston to compress the spring (see figure 2B, wherein energy is inherently charged when the piston is moved to compress the spring), and wherein energy is stored by locking the piston once the spring is compressed (see figure 2B, wherein energy is stored once piston 28 is locked).

With respect to claim 2, Pringle et al. discloses that the piston is adapted to be moved by differential pressure between the well and the spring (see column 4 lines 25-29).

With respect to claim 3, Pringle et al. discloses a gas chamber formed in the tool body (36); and a compressible gas located in the gas chamber (see column 3 lines 32-33).

With respect to claim 4, Pringle et al. discloses that the piston is arranged in the gas chamber (see figure 2B).

With respect to claim 5, Pringle et al. discloses that the gas comprises nitrogen (see column 3 lines 32-33).

With respect to claim 7, Pringle et al. discloses an actuator for use in a wellbore, comprising: a tool body (10) having a bore (16) and a gas chamber formed therein (36), the gas chamber adapted to hold a compressible gas (see column 3 lines 32-33), the bore adapted to receive a fluid (wherein 16 is adapted to receive a fluid); a moveable piston arranged in the gas chamber (28), the piston dividing the gas chamber into two portions (see figure 2B); a latching mechanism that selectively prevents the piston from moving (52, 54); and a port providing fluid communication between the bore and one portion of the gas chamber (18), wherein the actuator is charged with energy downhole by moving the piston to compress the gas in the gas chamber using pressure in the wellbore (see column 4 lines 25-51).

With respect to claim 8, Pringle et al. discloses a sleeve arranged in the tool body for defining the bore and the gas chamber (12).

With respect to claim 10, Pringle et al. discloses a second latching mechanism, the second latching mechanism comprising: a latching finger formed on the piston (56, 58); and a recess formed in the tool body for receiving the latching finger to selectively latch the piston to the tool body (see figure 1B).

With respect to claim 11, Pringle et al. discloses that the compressible gas comprises nitrogen (see column 3 lines 32-33).

With respect to claim 12, Pringle et al. discloses that the pressure in the wellbore is the differential pressure between pressure of the gas in the gas chamber and

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pressure of the fluid in the bore (see column 4 lines 11-17, wherein the gas in the chamber has one pressure and the fluid in the bore has another pressure).

With respect to claim 13, Pringle et al. discloses that the latching mechanism comprises a shearing mechanism adapted to selectively release the piston at a predetermined pressure (see figure 4 and column 4 lines 17-24).

With respect to claim 16, Pringle et al. discloses that the tool body is connected to a downhole tool (see abstract).

With respect to claim 17, Pringle et al. discloses that the downhole tool is a valve (see abstract).

With respect to claim 18, Pringle et al. discloses a method for energizing a tool in a well, comprising: lowering the tool into the well (see abstract); using pressure in the well to compress a spring member in the tool (see column 4 lines 25-51); and holding the spring member in a compressed state to store energy (see column 4 lines 25-51).

With respect to claim 19, Pringle et al. discloses that the spring member is a gas spring (see column 3 lines 32-33).

With respect to claim 21, Pringle et al. discloses using the stored energy to actuate the tool by decompressing the spring (see column 5 lines 1-30).

With respect to claim 22, Pringle et al. discloses that the tool is a valve (see abstract).

With respect to claim 23, Pringle et al. discloses a method, comprising: running a tool in a well (see abstract); using pressure in the well to move a piston in the tool to compress a gas (see column 4 lines 25-51); locking the piston in the tool to prevent the

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gas from decompressing (see figure 1B); and using the compressed gas to actuate the tool (see column 5 lines 1-30).

With respect to claim 25, Pringle et al. discloses a method for actuating a valve in a well, the method comprising: connecting the valve to an actuator (see figures 1B and 2B); running the valve downhole (see abstract); using pressure in the well to compress a gas in the actuator (see column 4 lines 25-51, whereby the pressure in the well would inherently compress the gas in chamber 36); holding the gas in a compressed state to store energy in the actuator for actuating the valve (see column 4 lines 25-51); and decompressing the gas to actuate the valve (see column 4 lines 25-51).

With respect to claim 26, Pringle et al. discloses that compressing the gas is achieved by moving a piston in the actuator (see column 4 lines 25-51).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6, 9, 14, 15, 20, 24, 27-29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pringle et al. in view of Holden et al. (USP 4,058,165).

With respect to claims 6 and 20, Pringle et al. discloses the invention substantially as claimed. However, Pringle et al. does not disclose an apparatus whereby the spring comprises a mechanical spring. Holden et al. teaches that a

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mechanical spring can be used in place of or in conjunction with the inert gas chamber to vary the restoring force on a piston. See column 5 lines 20-22. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the piston assembly of Pringle et al. by including a mechanical spring as taught by Holden et al. in order to vary the restoring force on a piston.

With respect to claim 28, Pringle et al. discloses a method for actuating a valve in a well, the method comprising: connecting the valve to an actuator (see figures 1B and 2B); running the valve downhole (see abstract). However, while Pringle et al. discloses a gas spring, Pringle et al. does not disclose using pressure in the well to compress a mechanical spring; holding the mechanical spring in a compressed state to store energy in the actuator for actuating the valve; and decompressing the mechanical spring to actuate the valve. As explained above, Holden et al. teaches that a mechanical spring can be used in place of or in conjunction with the inert gas chamber to vary the restoring force on a piston. See column 5 lines 20-22. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the piston assembly of Pringle et al. by including a mechanical spring as taught by Holden et al. in order to vary the restoring force on a piston.

With respect to claims 9, 24, and 27, Pringle et al. does not disclose a ratchet formed on the piston; and a mating surface formed on the sleeve, the mating surface adapted to engage the piston and selectively lock the piston to the sleeve. However, Holden et al. discloses a ratchet formed on the piston and a mating surface formed on the sleeve. See figure 1e and column 4 lines 43-48. Holden et al. teaches putting a

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ratchet on the piston in order to have a tool that is extremely safe and advantageous for use in offshore wells and unpredictable high pressure inland wells. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Pringle et al. by including a ratchet surface on the piston as taught by Holden et al. in order to have a tool that is extremely safe and advantageous for use in offshore wells and unpredictable high pressure inland wells.

With respect to claim 29, Pringle et al. discloses an energy storage apparatus for receiving and storing an energy charge for actuating a downhole tool arranged in a wellbore, the energy storage apparatus comprising: a body connectable to the downhole tool (see figures 1B and 2B); a sleeve arranged within the body, the sleeve defining a central bore and a chamber (see figures 1B and 2B); a moveable piston arranged in the chamber, the piston dividing the chamber into two portions (see figure 1B, numeral 28); a port adapted to communicate well fluid from the bore to one portion of the chamber (18); a compressible gas arranged in the other portion of the chamber, the gas being compressible by the piston(see column 3 lines 32-36).

Pringle et al. does not disclose a ratcheting mechanism to selectively hold the piston to compress the gas, the ratcheting mechanism adapted to release the piston at a predetermined pressure. However, as explained above Holden et al. discloses a ratcheting device. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Pringle et al. by including a ratchet surface on the piston as taught by Holden et al. in order to have a tool that is extremely safe and advantageous for use in offshore wells and unpredictable high pressure inland wells.

With respect to claim 30, Pringle et al. teaches a latching mechanism to selectively hold the piston to prevent the piston from moving during initial running of the downhole tool in the wellbore, the latching mechanism adapted to release the piston at a predetermined pressure (see column 4 lines 25-51).

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pringle et al. in view of Gilbert (USP 5,101,904).

Pringle et al. discloses the invention substantially as claimed. However, Pringle et al. does not disclose that the piston comprises a rupture disk adapted to break and release the piston at a predetermined pressure. Gilbert et al. discloses a rupture disk that will rupture if the control passage exceeds an allowable limit in order to disable the actuator and close the valve, and thus serve as a pressure relief means. See column 4 lines 31-41. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Pringle et al. by including a rupture disk as taught by Gilbert et al. in order to disable the actuator, close the valve, and serve as a pressure relief means.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pringle et al. in view of Gilbert et al., in further view of Brown (USP 6,321,847).

Pringle et al. in view of Gilbert et al. disclose the invention substantially as claimed. However, Pringle et al. in view of Gilbert et al. does not disclose a shearing mechanism. Brown teaches that shear pins are used to initially lock a piston to the

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outer mandrel in order to yield under a given applied load (see column 2 lines 39-41). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Pringle et al. in view of Gilbert et al. by including a shear pin as taught by Brown, in order to allow the piston to yield under a given applied load.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole Coy whose telephone number is 571-272-5405. The examiner can normally be reached on M-F 8:00-5:30, 1st F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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